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- 1. A packet communication mothod for a network having a plurality of bus systems increammented by at least one bus bridge, wherein at least one node is attached to each of said bus systems, wherein said bus systems, each bridge and said node are in compliance to a serial bus standard, characterized in that said bus bridge establishes a connection between a first channel used in a first bus system of said plurality of bus systems for transmission of packets to a first multicast address and a second channel used in a second bus system of said plurality of bus systems for transmission of packets to a second multicast address and a second multicast address are equal to eath other.
- 2. A parket communication method for a network having a plurality of bus systems interconnected by at least one bus bridge, wherein at least one node is attached to earh of said bus systems, wherein said bus systems, said bridge and said mode are in compliance to a serial bus standard, characterized in that:

sold at least one node attached to each of said plurality of bus systems, when initiating a multicast packet transmission to a multicast group of the bus system, acquires a channel to be used for said multicast packet transmission and broadcasts a message pertaining to said channel; and

said at least one but bridge establishes a connection between channels unquired for different but systems when said message to received from each of said different but systems.

3. A pecket communication method for a network having an intermediate bus system connected between first and second bus systems by first and second bus bridges, wherein at least one node is attached to each of said bus systems, and wherein said bus systems, and bridge and said node are in compliance to a serial bus standard, characterized in that:

said at least one node attached to cach of said bus systems acquires a channel to be used for multicast packet transmission and broadcasts a message pertaining to said channel and a multicast group when initiating a multicast packet transmission to said multicast group:

said first bur bridge acquires an interconnection channel if there is no node in said intermediate bus system participating in said multicast group and if two of said metatge having an identical multicast address are received, one from said first bus system and the other from said second bus system, broadcasts a message pertaining to said interconnection drawnel and said multicast group and connects a first end of the interconnection channel to the channel acquired for said first bus system; and

said second bus bridge connects a second end of the interconnection channel to the channel sequired for the second bus system when said message is received from said first bus bridge.

4. A packet communication method for a network having a plurality of bus systems interconnected by at least one bus bridge, wherein at least one node is attached to each of said bus systems, and wherein said bus systems, said bridge and said node are in compliance to a serial bus standard, characterized in that:

said at least one node attached to each of said plurality of bus systems

Acquires a first channel to be used for multicast packet transmission and broadcasts a first message containing information pertaining to said first channel and a multicast group when initiating a multicast packet transmission to said multicast group;

said at least one node on each of said bus systems when operating as a receive-only node acquires a second channel if said first message is received when the bus system of the receive-only node has no node responsible for channel acquisition, and broadcasts a second message pertaining to said second channel and said multicast group; and

said at least one bus bridge establishes an inter-chancel connection between said first and second channels when said first and second messages are received.

- The packet communication method of claim 3, wherein said first
   bus bridge is determined as a bridge responsible for acquisition of said interconnection channel depending on relative values of identifiers assigned to said first and second bus bridges.
- 6. The packet communication method of claim 3, wherein said first
  bus bridge is determined as a bridge responsible for acquisition of said
  interconnection channel depending on a random number.
- 7. A packet communication method for a network comprising a
  plurality of nodes, first and second bus systems to which said nodes are
  attached, and a bus bridge for performing a transfer of packets between said
  first and second bus systems, the method comprising the steps of:

- a) acquiring, at a first mode attached to said first bus system, a first channel for transmission of packets to a first multicast address and broadcasting a first mussage pertaining to said first channel and said first multicust address:
- ecquiring, at a second mode attached to the second bus system, a second channel for transmission of packets to a second multicast address and broadcasting a second message pertaining to said second channel and said second multicast address; and
- c) receiving, at said bus bridge, the first and second messages and establishing a connection between two channels respectively identified by the received messages if the multicast addresses contained therein are equal to each other.
- 8. A parker communication method for a network comprising first and second bus systems and an intermediate bus system between said first and second bus systems, a phirality of nodes attached to said first, second and intermediate bus systems, and a first bus bridge for performing a transfer of packets between said first and intermediate bus systems, and a second bus bridge for performing a transfer of packets between said intermediate and second bus systems, the method comprising the steps of:
- a) acquiring, at a first node stracted to said first bus system, a first charmel for transmission of packets to a first multicast address and broadcasting a first message pertaining to said first charmel and said first multicast address;
- acquiring, at a second node attached to said second bus system,
   a second channel for transmission of packets to a second multicast address

 $\chi_{\rm said}$  broadcasting a second ministage pertaining to said second channel and  $\chi_{\rm said}$  second multicast address;

- c) receiving, as said first but bridge, the first and accord messages and acquiring a third channel for transfer of packets on said intermediate but system if the received first and second messages indicate that the multicast addresses contained therein are equal to each other, establishing a connection however a channel identified by the received first message and the acquired third channel, and broadcasting from said first but bridge a third message permining to said third channel.
- d) receiving, at said second bus bridge, the first and second messages from said first and second nodes and subsequently receiving said third message from said first bus bridge if the received first and second museages indicate that the multicast addresses contained therein are equal to each other, and establishing a connection between two charmets respectively identified by the second and third messages.
- 9. A packet communication method for a network comprising a
  1. plurality of nodes, first and second bus systems to which said nodes are
  2. attached, and a bus bridge for performing a transfer of packets between
  2. adjacent said first and second bus systems, the method comprising the steps
  2. of:
  - acquiring, at a first node attached to said first bur system. a first channel for transmission of packets to a multicast address and broadcasting a first threstage pertaining to said first channel and said multicast address;
- b) acquiring, as a second, receive only node attached to said but
   system, a second channel for reception of packets from the first node in

Tresponse to receipt of said tiest message and broadcasting a second message pertaining to said second channal and said multicast address;

- c) receiving, at said bus bridge, the first and accord messages and establishing a connection between two channels respectively identified by the received first and second messages if multicast addresses contained therein are equal to each other.
- --10. (Amonded) The packet communication method of claim
  7, wherein the step (c) comprises establishing said connection
  by converting a channel identifier contained in a multicast
  packet received on said first channel to a channel identifier
  identifying said second channel and converting a channel
  identifier contained in a multicast packet received on said
  second channel to a channel identifier identifying said first
  channel.
- 11. [Amended] The packet communication method of claim 7, wherein daid first and second messages further contain first and second bus identifiers respectively identifying said first and second bus systems, and wherein said bus bridge has first and second ports respectively connected to said first and second bus systems, and wherein the step (c) comprises establishing said connection if the bus bridge receives said first message through said first port and said second messages through said second port and if said first and second bus identifiers respectively contained in said first and second messages indicate that aid bus bridge is directly connected to maid adjacent bus systems.

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12. The packet communication method of chim 8, wherein the step

(c) comprises:

establishing said connection, or said flest bus bridge, by converting a channel identifier contained in a multirast parket received on said first channel to a channel identifier identifying said third channel and converting a channel identifier contained in a multirast parket received on said third channel identifier identifying said first channel, and

establishing said connection, at said second bus bridge, by converting a channel identifier contained in a multicast packet received on said second channel to a channel identifier identifying said third channel and converting a channel identifier contained in a multicast packet received on said third channel to a channel identifier identifying said second channel.

13. The packet communication method of claim 8, wherein said first and second messages further contain first and second bus kiemifiers respectively identifying add first and second bus systems, and wherein add first bus bridge has first and second ports respectively connected to said first and intermediate bus systems, and said second bus bridge has first and second ports respectively connected to said intermediate and second bus systems, wherein the step (c) comprises:

establishing said connection, at said first bus bridge, if the first bus bridge receives said first message through said first port and said second message through said second part and if said first and second bus identifiers respectively contained in said first and second messages indicate that the first bus bridge is directly connected to said first bus system, and

establishing said connection, at said second bus bridge, if the second bus intege receives said first massage through said first port and said second

message through said second port and if said first and second bus identifiers respectively contained in said first and second messages indicate that the second bus bridge to directly connected to said second bus system.

- 14. The packet communication method of claim 6, wherein said first hus bridge is determined as a bridge responsible for acquisition of said third channel depending on relative values of identifiers assigned to said first and second bus bridges.
- 15. The packet communication method of claim 8, wherein said first bus bridge is determined as a bridge responsible for acquisition of said third channel depending on a random number.
- 16. A bus bridge for interconnecting a plurality of bus systems of a pecket communication network, each of said bus systems including at least one node, wherein said bus systems, said bridge and said node are in compliance to a serial bus standard, characterized in that said bus bridge establishes a connection between a first channel used in a first bus system of said plurality of bus systems for transmission of packets to a first multicast address and a second charnel used in a second bus system of said plurality of bus systems for transmission of packets to a second multicast address if said first and second multicast addresses are equal to each other and said first and second channels have different channel identifiers from each other.
- A packet communication retwork comprising a plurality of bus systems interconnected by at least one bus bridge, wherein at least one node

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is attached to each of said bus systems, and wherein said bus systems, said bridge and said mode are in compliance to a serial bus standard, characterized in that

said at least one node anathed to each of said plurality of but systems, when initiating a multicast packet transmission to a multicast group of the bus system, acquires a channel to be used for said multicast packet transmission and broadcasts a message containing information permitting to each channel and

said at least one bus bridge establishes a connection between thannels sequired for different bus systems when said message is received from each of said different bus systems.

18. A packer communication network comprising an intermediate bus system converted between first and second bus systems by first and second bus bridges, wherein at least one mode is attached to each of said bus systems, and wherein said bus systems, said bridge and said node are in compliance to a serial bus standard, characterized in that:

raid at least one node attached to each of said bus systems is responsible for exquisition of a channel to be used for multicast packet transmission and broadcasts a message containing information pertaining to said channel and a multicast group when infiniting a multicast packet transmission to said multicast group;

said first bus bridge acquires an interconnection charmel if there is no node in said intermediate bus system participating in said multicast group and if two of said message having an identical multicast address are received, one from said first bus system and the other from said second bus system.

broadcasts a message pertaining to said interconnection channel and said inulticast group and connects a first end of the interconnection channel to the channel acquired for said first bus system; and

said second bus bridge connects a second end of the intercurrection channel to the charmel acquired for the second bus system when said message to received from said lifet bus bridge.

19. A packet communication network comprising a plumility of bus systems interconnected by at least one bus bridge, wherein as least one node is attached to each of said bus systems, and wherein said bus systems, said bridge and said node are in compliance to a sortal bus standard, characterized in that:

said at least one node attached to each of said phisality of bus systems acquires a first channel to be used for multicast packet transmission and broadcasts a first message containing information pertaining to said first channel and a multicast group when initiating a multicast packet transmission to said multicast group;

sold at least one node on each of said but systems when operating as a receive-only node acquires a second channel if said first massage is received when the but system of the receive-only node has no node responsible for channel acquisition, and broadcasts a second message pertaining to said second channel and said multicast group; and

said at least one bus bridge establishes an inter-channel connection between eaid first and second channels when said first and second messages are received. Art Unit: \*\*\*

- 20. The packet communication network of claim 19, wherein said has bus beedge to determined on a bridge responsible for acquisition of said interconnection channel depending on relative values of identifiers ensigned to said first end second bus bridges.
- 21. The packet communication network of claim 19, wherein said first bus bridge is determined as a bridge responsible for acquisition of said interconnection channel depending on a random number.
  - 22. A pecket communication network comprising: a phurality of nodes;

first and second bus systems to which said nodes are attached; and a bus bridge for performing a transfer of packets between said first and second bus systems;

a first mode attached to sold first bus system acquiring a first channel for transmission of packets to a first multicast address and broadcasting a first message pertaining to said first channel and said first multicast address;

a second node attached to the second bus system counting a second channel for transmission of packets to a second multicast address and broadcesting a second mustage pertaining to said second channel and said second multicast address.

said his bridge receiving the first and second messages and establishing a connection between two channels respectively identified by the received messages if the multimest addresses contained therein are equal to each other.

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## 23. A packet communication network comprising:

first and second bus systems and an intermediate bus system between said first and second bus systems;

- a plurality of nudes attached to said first, second and intermediate bus systems:
- a first bus beidge for performing a transfer of packets between said first and intermediate bus systems;
- a second bus bridge for performing a transfer of packers between said intermediate and second bus systems;
- a first mode attached to said first bus system acquiring a first channel for trensmission of packets to a first multicast address and broadcasting a first message pertaining to said first channel and said first multicast address,
- a second node attached to said second but system acquiring a second channel for transmission of packets to a second multicast address and broadcasting a second message pertaining to said second channel and said second multicast address.

said first bus bridge receiving the first and second messages, acquiring a third channel for transfer of packets on said intermediate bus system if the received messages indicate that the multicast addresses contained therein are equal to each other, establishing a connection between a channel identified by the received first message and the exquired third channel, and broadcasting a third message persanting to said third channel.

said second true bridge receiving the first and second messages, and subsequently receiving said third message if the received first and second messages indicate that the multicast addresses contained therein are equal to each other, and establishing a connection between two channels respectively

Admitted by the second and third messeges.

24. A packet communication network comprising:

a plurality of nodes:

first and second bus systems to which eath nodes are attached; and a bus bridge for performing a transfer of packets between adjacent said.

a bus bridge for performing a transfer of packets between adjacent a flest and second bus systems.

 herst node attached to said first bus system acquiring a first channel for transmission of packets to a multicast address and broadcasting a first message pertaining to said first channel and said multicast address.

a second, receive-only node attached to said but system acquiring a second channel for reception of packets from the first node in response to receipt of said first message and broadcasting a second message pertaining to said second channel and said multimat address,

said but bridge receiving the first and second messages and establishing a connection between two charmels respectively identified by the received first and second messages if multirast addresses contained therein are equal to each other.

25. [Amended] The packet communication network of claim 22, wherein said bus bridge establishes said connection by converting a channel identifier contained in a nulticast packet received on said first channel to a channel identifier identifying said second channel and converting a channel identifier contained in a multicast packet received on said second channel to a channel identifier identifying said first thannel.

26. (Amended) The packet communication network of claim 22, wherein said first and second nessages further contain first and second bus identifiers respectively identifying said lirst and second bus systems, and wherein said bus bridge has

first and second ports respectively connected to said first and second bus systems and establishes said connection if the bus bridge receives said first message through said first port and said second seesage through said second port, and if eaid first and second bus identifiers respectively contained in said first and second messages indicate that said bus bridge is directly connected to said adjacent bus systems.--

28. The packet communication network of claim 23, wherein said first and second messages further contain first and second bus identifiers respectively identifying said first and second bus systems, and wherein said first bus bridge has first and second pure respectively connected to said first

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 $\delta$  and intermediate bus systems, and said second bus bridge has first and second ports respectively connected to said intermediate and second bus systems,

wherein each of said first and second bus bridger entablishes said connection if the bus bridge receives said first message through said first port and said second message through said second port, and if said first and second bus identifiers respectively contained in said first and second messages indicate that the first and second bus bridges are directly connected to said first and second bus systems, respectively

- 29. The packet communication network of claim 23, wherein said first our bridge is determined as a bridge responsible for acquisition of said third channel depending on relative values of identifiers assigned to said first and second bus bridges.
- 30. The packet communication network of chim 23, wherein said first but bridge is determined as a bridge responsible for acquisition of said third channel depending on a random number.

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